

In the Claims:

Please add new claims 50-60. Please amend claims 23, 24, 40 and 47-49. Please cancel claims 27-32, 35-39 and 41. The claims are as follows:

1-22. (Cancelled)

23. (Currently Amended) The bipolar transistor of claim ~~25~~ 50, wherein the base current of said bipolar transistor is higher than the base current of an identical bipolar transistor fabricated without said polysilicon grain size modulating species.

24. (Currently Amended) The bipolar transistor of claim ~~25~~ 50, wherein the resistance of said emitter of said bipolar transistor is lower than the emitter resistance of an identical bipolar transistor fabricated without said polysilicon grain size modulating species.

25. (Currently Amended) A bipolar transistor, comprising:

a single-crystal subcollector in direct contact with a top surface of a single-crystal collector;

a single-crystal intrinsic base comprising a doped silicon-germanium layer between an undoped silicon-germanium layer and an undoped silicon layer;

a single-crystal pedestal collector within said single-crystal collector and in direct physical contact with a bottom surface of said undoped silicon-germanium layer;

a single-crystal emitter in said undoped silicon layer, said single-crystal emitter extending from a top surface of said undoped silicon layer to said doped silicon-germanium layer; and

a polysilicon emitter containing a dopant species and a polysilicon grain size modulating species, ~~wherein said dopant species is arsenic and wherein said polysilicon grain size modulating species is antimony~~, said polysilicon emitter in direct physical contact with a top surface of said single-crystal emitter.

26-39 (Canceled)

40. (Currently Amended) A bipolar transistor, comprising;

a single-crystal silicon collector region;

a single-crystal silicon base region in said collector region;

a single-crystal silicon emitter region formed in said base region; and

a poly-crystalline silicon emitter layer in direct contact with a top surface of said emitter region, said emitter layer containing ~~a dopant~~ an arsenic species and an antimony species.

41. (Canceled)

42. (Previously Presented) The bipolar transistor of claim 40, wherein the base current of said bipolar transistor is higher than the base current of an identical bipolar transistor fabricated without said antimony species.

43. (Previously Presented) The bipolar transistor of claim 40, wherein the resistance of said emitter of said bipolar transistor is lower than the emitter resistance of an identical bipolar transistor fabricated without said antimony species.

44. (Previously Presented) The bipolar transistor of claim 40, wherein a silicon grain size of said polysilicon emitter layer of said bipolar transistor is greater than a silicon grain size of a polysilicon emitter layer an identical bipolar transistor fabricated without said antimony species.

45. (Previously Presented) The bipolar transistor of claim 40, wherein said dopant species is arsenic and is implanted into said polysilicon emitter at a dose of $1\text{E}15$ to $2.3\text{E}16$ atm/cm^2 and at an energy of about 40 to 70 Kev, and wherein said antimony species is implanted into said polysilicon emitter layer at a dose of $1\text{E}15$ to $1.5\text{E}16$ atm/cm^2 and at an energy of 30 to 70 Kev.

46. (Previously Presented) The bipolar transistor of claim 40, wherein said base region includes germanium.

47. (Currently Amended) The bipolar transistor of claim ~~25~~ 50, wherein said dopant species is implanted into said polysilicon emitter at a dose of $1\text{E}15$ to $2.3\text{E}16$ atm/cm^2 and at an energy of about 40 to 70 Kev, and wherein said polysilicon grain size modulating species is implanted into said polysilicon emitter at a dose of $1\text{E}15$ to $1.5\text{E}16$ atm/cm^2 and at an energy of 30 to 70 Kev.

48. (Currently Amended) The bipolar transistor of claim ~~25~~ 50, wherein a concentration of dopant is higher at a predetermined distance from a bottom surface of said polysilicon emitter than a concentration of dopant at the same pre-determined distance from a bottom of an identical polysilicon emitter of an identical bipolar transistor without said polysilicon grain size modulating species.

49. (Previously Presented) The bipolar transistor of claim 40, wherein a concentration of dopant is higher at a predetermined distance from a bottom surface of said emitter layer than a concentration of dopant at the same pre-determined distance from a bottom of an identical emitter layer of an identical bipolar transistor without said polysilicon grain size modulating species.

50. (New) The bipolar transistor of claim 25, wherein said dopant species is arsenic and said grain modulating species is antimony.

51. (New) The bipolar transistor of claim 25, wherein said dopant species is arsenic and said grain modulating species is carbon.

52. (New) The bipolar transistor of claim 50, wherein a silicon grain size of said polysilicon emitter layer of said bipolar transistor is greater than a silicon grain size of a polysilicon emitter layer an identical bipolar transistor fabricated without said antimony species.

53. (New) The bipolar transistor of claim 51, wherein the base current of said bipolar transistor is lower than the base current of an identical bipolar transistor fabricated without said polysilicon grain size modulating species.

54. (New) The bipolar transistor of claim 51, wherein the resistance of said emitter of said bipolar transistor is higher than the emitter resistance of an identical bipolar transistor fabricated without said polysilicon grain size modulating species.

55. (New) The bipolar transistor of claim 51, wherein said dopant species is implanted into said polysilicon emitter at a dose of $1\text{E}15$ to $2.3\text{E}16$ atm/cm^2 and at an energy of about 40 to 70 Kev, and wherein said polysilicon grain size modulating species is implanted into said polysilicon emitter at a dose of $1\text{E}14$ to $1.5\text{E}16$ atm/cm^2 and at an energy of 15 to 35 Kev.

56. (New) The bipolar transistor of claim 25, wherein said single-crystal pedestal collector contacts said undoped silicon-germanium layer only in a region of said undoped silicon-germanium layer that is directly under said single-crystal silicon emitter.

57. (New) The bipolar transistor of claim 25, further including:

an extrinsic base indirect physical contact with sides of said intrinsic base.

58. (New) The bipolar transistor of claim 25, further including:

a deep single-crystal collector within said single-crystal collector, said deep single-crystal collector in between said single-crystal pedestal collector, a top surface of said deep single-crystal collector in direct physical contact with a bottom surface of said single-crystal pedestal collector and a bottom surface of said deep single-crystal collector in direct physical contact with said top surface of said single-crystal subcollector.

59. (New) The bipolar transistor of claim 25, wherein said single-crystal collector, single-crystal subcollector, single-crystal pedestal collector, single-crystal emitter and polysilicon emitter are doped N-type and said single-crystal intrinsic base is doped P-type.

60. (New) The bipolar transistor of claim 25, wherein said doped silicon-germanium layer is doped with boron.